

Claims

1. A method for producing hydroxylammonium salts by
5 reacting nitrous oxide (NO) with a molar hydrogen surplus in an aqueous medium of strong mineral acids in the presence of a noble metal catalyst suspended on a carbon-based support at excess pressure up to 10 bar and temperatures up to 80°C, the hydroxylammonium salt being constantly removed from the reaction vessel,
10 said vessel being a stirred reactor with an agitator shaft and agitator blades attached to it via a hub and bearing surface or support, characterized in that - a gas inlet and distribution system is provided in the lower part of the stirred reactor,
15 - a disk agitator is placed immediately above, the hub with bearing surface or support of which comprising angled, concave and tilted agitator blades that rotate their angled or concave sides in the direction of motion, and
20 - a two-blade blade agitator is provided on the agitator shaft in the upper part of the stirred reactor, its individual leaves being offset like lamellas at an angle of 0 to 30°C to the blade axis so that they
25 constantly wet the reactor cap when rotating.
2. The method according to claim 1 wherein sulfuric acid at a 4 to 5-normal concentration is used as the strong mineral acid and the product is hydroxylammonium sulfate.
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3. The method for producing hydroxylammonium salts according to claims 1 or 2 wherein hydrogen and NO are used at a molar ratio of 1.9 to 2.0 : 1.0.
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4. The method for producing hydroxylammonium salts according to one or several of claims 1 to 3 wherein

the suspended catalyst (including its support) is used in a liquid suspension at 7 to 50 g/l and a mean diameter of 30 to 80 μm .

- 5 5. The method for producing hydroxylammonium salts according to one or several of claims 1 to 4 wherein platinum is used as a noble metal catalyst at a concentration of 0.1 to 0.5 percent by weight in relation to its carbon support.
- 10 6. The method for producing hydroxylammonium salts according to one or several of claims 1 to 5 wherein the gases escape from an annular gas inlet and distribution system with an average gas bubble diameter of 5 mm to 6 mm and a gas speed of 7 to 30 m/sec.
- 15 7. The method for producing hydroxylammonium salts according to one or several of claims 1 to 6 wherein 6 concave agitator blades are attached to the rotating hub of the disk agitator.
- 20 8. The method for producing hydroxylammonium salts according to one or several of claims 1 to 7 wherein wall baffles are arranged in the stirred reactor.
- 25 9. The method for producing hydroxylammonium salts according to one or several of claims 1 to 8 wherein the two-blade blade agitator in the top portion of the stirred reactor is placed at an angle of incidence of 45° to 90° in relation to the liquid level in the reactor, wherein it consists of offset individual lamella-like leaves, and wherein it has an agitator diameter of 0.3 to 0.4 relative to the reactor diameter.
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10. The method for producing hydroxylammonium salts according to one or several of claims 1 to 9 wherein the blade height of the individual leaves of the blade agitator is 0.2 to 0.5 relative to the blade agitator diameter.
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11. The method for producing hydroxylammonium salts according to one or several of claims 1 to 10 wherein the disk agitator in the bottom portion of the reactor is operated at a peripheral speed of 5 to 15 m/sec.
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